

PALEONTOLOGY.—*Cenozoic pearls from the Atlantic Coastal Plain*. H. E. VOKES,
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Recently (April 3, 1955) while on a field trip with an undergraduate class in geology from The Johns Hopkins University, I collected a large pair of valves of the pelecypod *Isognomon maxillata* (Deshayes) from the lower part of the Choptank formation in an exposure approximately one-half mile south of Kenwood Beach (Governor's Run), Calvert County, Md. Unfortunately, and characteristically, the specimen broke up almost as soon as collected, owing to the fact that, in life, the nacreous calcareous layers were apparently separated by unusually thick layers of organic conchiolin that now have decayed. As a result the shells tend to break into thin platy sheets as soon as removed from the enclosing matrix.

As I was about to discard the ruined specimen I noted an unusual structure lying in the matrix that had been adjacent to the left valve. When removed it proved to be a large, almost spherical pearl (Figs. 1, 2) whose outer layers, like those of the enclosing shell tended to exfoliate, apparently due to the destruction of the conchiolin. Fortunately the inner layers were more resistant and the specimen as finally secured has a greatest diameter of 10.2 mm; complete it is estimated that the diameter was somewhat in excess of 15 mm. The portion of the pearl that was adjacent to the shell is flattened by the breaking away or incomplete deposition of approximately five lamina of that portion of the pearl that is yet preserved. These lamina, as measured on their broken edges are 0.2 to 0.25 mm thick. It is probable that the pearl was originally attached to the inner side of the valve in this area after the manner quoted by Brown (1940, p. 369) from Kunz and Stephenson (1908, p. 57). The structure of the shell of *I. maxillata*, and the fact that most specimens from the Choptank formation show, even today, a considerable degree of mother-of-pearl luster, suggest that this specimen was originally a highly lustrous gem pearl.

Brown, while describing a number of pearls from the Upper Cretaceous of Kansas,

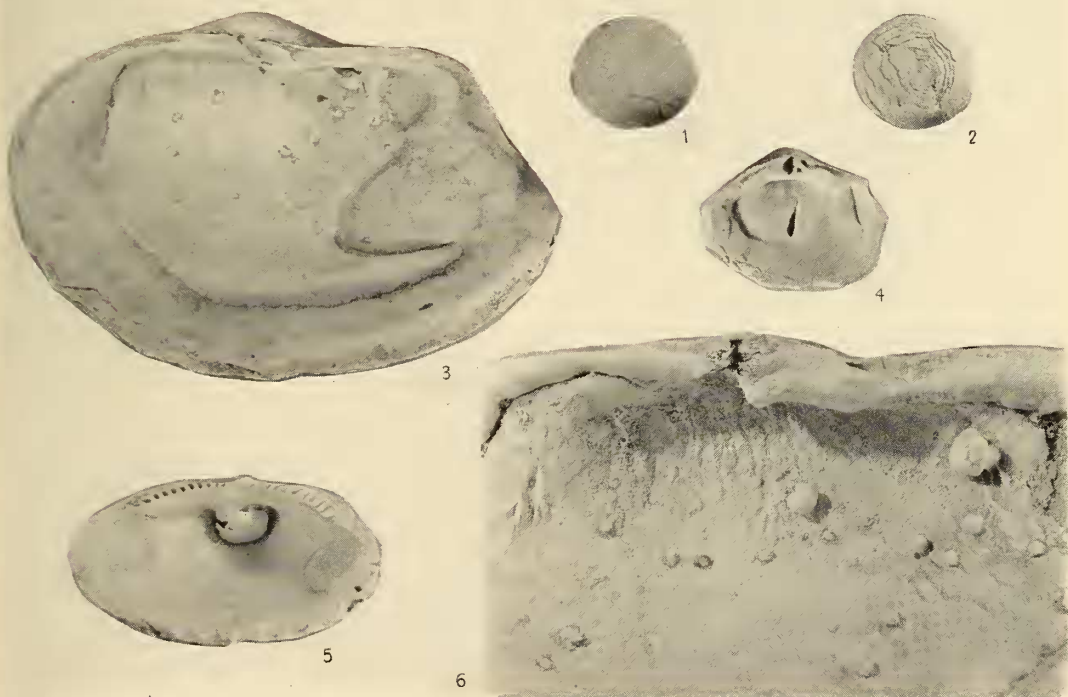
has tabulated (1940, table 1, p. 370) the reported occurrences of fossil pearls, which are known from all periods of the Mesozoic and Cenozoic eras. No definite pearls have been reported from the Paleozoic deposits, although Brown (p. 370) notes that minute pearl-like forms have been reported from the Upper Silurian. The absence of these structures from the Paleozoic seems almost certainly an accident of collecting, rather than an indication of the fact that such structures were not produced by Paleozoic pelecypods. More of the reported fossil pearls have been found in association with species of the family Isognomonidae which includes *Inoceramus* and *Isognomon* (= *Perna*, *Pedalion*, and *Melina*) than have been found in association with species referable to any other of the families of pelecypods. This family is represented in the upper Paleozoic by the genus *Bakevellia*. Six records listed by Brown are from species referable to the family Mytilidae (*Mytilus* and *Volsella*). This family is well represented in the Paleozoic and Newell (1942, p. 32) has shown that the related Myalinidae, abundant in the upper Paleozoic, had nacreous shells.

The specimen here described is the first "true" pearl to be reported from the American Miocene. Berry (1936, p. 464) has described a large "blister" pearl occurring in a specimen of *Panope americana* Conrad from the Choptank formation near Jones Wharf, Md., and Brown (1940, p. 367) has recorded a second occurrence in the same species from the same locality. A specimen in the collections of The Johns Hopkins University from the Choptank at Governor's Run, Md., has two smaller and very irregular pearls that are located immediately in front of the posterior adductor scar.

Species of the genus *Panope*, a burrowing pelecypod with a wide posterior gape where the large siphons emerge, seem to have been peculiarly subject to injury and to the possible entry between the shell and the

mantle of irritant material, probably sand grains. A pair of large valves of *P. floridana* Heilprin from the Caloosahatchie beds of the Florida Pliocene, in the Aldrich collection of The Johns Hopkins University show definite evidences of injury in the siphonal region of the shell, and on the inside of both valves there are a number of small, irregular pearls. There are 24 of these inside the right valve (Figs. 3, 6) and 22 in the left. The largest, in the right valve, has a diameter of 7.5 mm, one is 4.4 mm, and the rest are 3.5 mm or less. One of the smaller ones was ground in an effort to determine the structure; since *Panope* is a non-nacreous shell, the pearl, as to be expected, did not reveal well-developed laminar texture.

In addition to these specimens, the writer has collected two specimens from the upper Miocene Duplin marl at the Natural Well near Magnolia, N. C., that show "blister" pearls. One (Fig. 5), a left valve of *Glycymeris subovata* (Say), has a pearl of 6.5 mm greatest diameter located in the apex of the valve immediately below the umbo and behind the hinge-plate below which it projects slightly. There is no external evidence of injury or boring that penetrated the shell to account for the location of the "blister" in this part of the shell. The second specimen (Fig. 4) is a left valve of the common *Mulinia lateralis* (Say), the most abundant species in the fauna at the Natural Well. In the present specimen a large



FIGS. 1, 2.—Pearl from *Isognomon maxillata* (Deshayes): 1, Dorsal view; 2, Base showing some of the concentric laminae ($\times 1.5$). The original specimen before exfoliation of the outer laminae was approximately the size of this illustration. Choptank formation, Governor's Run, Md.

FIGS. 3, 6.—*Panope floridana* Heilprin: 3, Right valve ($\times 0.5$) with many irregular pearls (note the evident damage and repair to the posterior end of the valve); 6, oblique view of part of interior of shell ($\times 1$); the large specimen in the upper right has a greatest diameter of 7.5 mm normal to the plane of the photograph. Caloosahatchie formation, Pliocene, Fla.

FIG. 4.—Blister pearl in interior of broken valve of *Mulinia lateralis* (Say) ($\times 1.2$). Duplin marl, Miocene, Natural Well, N. C.

FIG. 5.—*Glycymeris subovata* (Say), oblique view showing pearl under the umbo and behind the hinge-plate ($\times 1.2$). Duplin marl, Miocene, Natural Well, N. C.

"blister" 11.3 mm in greatest diameter, occupies much of the upper half of the interior of the valve between the adductor scars. The thickest development of the "blister" is toward the posterior part of the structure, and coincides with a boring on the exterior of the valve, indicating that the initial irritant was probably an organism. However, a cut made in the "blister" revealed that it was hollow and contained a considerable amount of sand and mud, suggesting that the enlargement of the "blister" had been caused by this secondary irritant. Neither *Glycymeris* nor *Mulinia* has a nacreous shell, hence neither of these "pearls" like those of *Panope*, are true pearls in the commonly accepted sense of the term, although both types have a similar mode of origin.

To date the following "pearls" have been reported from the Atlantic coastal Cenozoic deposits:

"BLISTER PEARLS":

Panope americana Conrad, two specimens from the Choptank formation, Miocene, at Jones Wharf, Md. (Berry, 1936, p. 464; Brown, 1940, p. 367).

Glycymeris subovata (Say), one specimen from the Duplin marl, Miocene, at Natural Well, N. C.

Mulinia lateralis (Say), one specimen from the Duplin marl, Miocene, at Natural Well, N. C.

"TRUE OR SPHERICAL PEARLS:

Isognomon maxillata (Deshayes), one specimen from the Choptank formation, Miocene, at Governor's Run, Md.

Panope americana Conrad, one specimen from the Choptank formation, Miocene, at Governor's Run, Md.

Panope floridana Heilprin, one pair of valves with numerous pearls, Caloosahatchie formation, Pliocene, Fla.

Anadara transversa (Say), one specimen from the Pleistocene at Wailes Bluff, Md. (Brown, 1946, p. 75).

REFERENCES

- BERRY, CHARLES T. *A Miocene pearl*, Amer. Midl Nat. **17**(2): 464-470, 3 figs. 1936.
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- . *A Pleistocene pearl from southern Maryland*. Journ. Washington Acad. Sci. **36**(3): 75-76, 2 figs. 1946.
- KUNZ, GEORGE F., and STEVENSON, CHARLES H. *The book of the pearl*: 548 pp. New York, 1908.
- NEWELL, NORMAN D. *Late Paleozoic Pelecypoda: Mytilacea*. Univ. Kansas, State Geol. Surv. Kansas, Publ. **10**(pt. 2): 1-115, 15 pls., 22 figs. 1942.

ENTOMOLOGY.—*New names in the Homoptera*.¹ Z. P. METCALF, North Carolina State College. (Communicated by H. Friedmann.)

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The new names proposed herewith seem to me to be necessary for the reasons stated. The names are listed under the appropriate family, subfamily, and tribe, according to the classification which I now use in the card catalogue of the Homoptera of the World. This should enable any student to locate the forms concerned.

Primary homonyms have been replaced even where the species are no longer included in the same genera. All references have been checked against the originals.

¹Contribution from the Entomology Department, North Carolina Agricultural Experiment Station, Raleigh, North Carolina. Published with the approval of the Director of Research as Paper No. 642 of the Journal Series.

Family CIXIIDAE

Subfamily CIXIINAE

Tribe CIXIINI

Oliarus ovatus, n. n.

pro *Oliarus lacteipennis* Kusnezov, Ent. Nachr. **10**: 161. 1937.

nec *Oliarus lacteipennis* Fowler, Biologia Centrali-Americana **1**: 93. 1904.

Family ARAEOPIDAE (DELPHACIDAE)

Subfamily DELPHACINAE

Tribe DELPHACINI

Nilaparvata caldwelli, n. n.

pro *Nilaparvata muiri* Caldwell and Martorell, Journ. Agr. Univ. Puerto Rico **34**: 193. 1951.

nec *Nilaparvata muiri* China, Ann. Mag. Nat. Hist. (9) **16**: 480. 1925.